

Explosion-Proof Advanced Ultraviolet Flame Detector

Model AUD500C1530D (IECEX)

Overview

The AUD500C1530D explosion-proof advanced ultraviolet flame detector is designed to detect ultraviolet radiation from an oil or gas burner flame, and can be used for either batch or continuous operation.

The AUD500C1530D is used in combination with a dedicated burner controller. By means of the built-in shutter, any malfunction of the ultraviolet flame detector or burner controller is detected by the continuous self-checking (dynamic self-checking) function, ensuring highly reliable combustion safety control.

Features

- Replacement and maintenance work is easy with the AUD maintenance kit (AUD60A1010), which includes the tube and shutter units.
- For a self-checking explosion-proof flame detector, the AUD500C1530D is compact and light weight, so there are few restrictions on mounting it on a burner.
- Excellent environmental specifications. Ambient temperature to 60 °C, IP67, can be vertically mounted, maximum wiring length 200 m.



Specifications

Item	Description
Explosion-proof structure	Ex db IIC T6 Gb
Explosion-proof certification	IECEX
Applicable flame types*	Fuel gas, natural gas, propane gas, kerosene, heavy oil, coke oven gas, hydrogen, chlorine, ammonia, naphtha, ethylene, etc.
Shutter voltage	Approx. 24 V DC (supplied from the burner controller)
Self-checking cycle	Approx. 80 cycles/min.
Insulation resistance	50 MΩ min. with a 500 V DC megger between the ground terminal and secondary terminals (with the tube unit removed) Secondary terminals: F, G, S1, S2
Dielectric strength	1500 V AC for 1 minute or 1800 V AC for 1 second between the ground terminal and secondary terminals (with the tube unit removed) Secondary terminals: F, G, S1, S2
Ambient temperature	-20 to +60 °C
Storage ambient temperature	-20 to +70 °C
Storage ambient humidity	90 % RH, 45 °C (without condensation)
Vibration resistance	4.9 m/s ² max., 10 to 55 Hz for 2 hours each in X, Y, and Z directions
Pressure resistance of monitoring pipe mounting section	690 kPa
Protective structure	IP67
Mounting orientation	-45° to +90° (vertical mounting)
Mounting screw size	G 2-1/4 parallel thread for pipes (used in the monitoring pipe mounting section) Note: R1 male thread, if the dedicated adapter is used.
Lead wires	18 AWG, heat-resistant silicone-insulated cable about 3 m long with 4 cores: yellow (G), blue (F), white (S1), white (S2)
Electrical conduit connection	Explosion-proof cable gland connecting thread (1/2 NPT)
Maximum wiring length	With 600 V PVC-insulated cable (IEC 60227-3), 2.0 mm ² , 200 m
Material	Mounting section: aluminum
Color of the main unit	Black
Weight	Approx. 2.5 kg
Service life of the tube and shutter units	3 years

* For applications using coke oven gas, hydrogen, chlorine, ammonia, naphtha, ethylene, etc., in which the burner structure may impose restrictions on the mounting of the flame detector, it is necessary to check that flame monitoring is reliable.

Model Selection

Basic model No.	Cable length	Lens type	Additional	Description
AUD500C15	3			Explosion-proof advanced ultraviolet flame detector
				10 m
		0		Standard
		1		Converging
			D	With inspection report

Compatible Devices

Model No.	Name
RX-R40, RX-R44, RX-R46	Burner control module
AUR300C, AUR350C, AUR355	Advanced ultraviolet burner controller
AUR450C, AUR455	Dynamic self-checking burner controller

Adapter (sold separately)

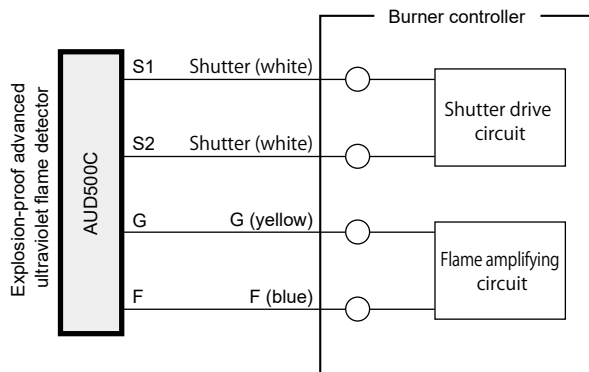
Model No.	Name
81441151-001	Converts G 2-1/4 female thread to R1 male thread. Has an R 1/8 hole for air purge.



Maintenance Parts

Model No.	Name
AUD60A1010	AUD maintenance kit (includes tube and shutter units)
81447031-001	Adapter packing
81446985-001	O-ring

Wiring



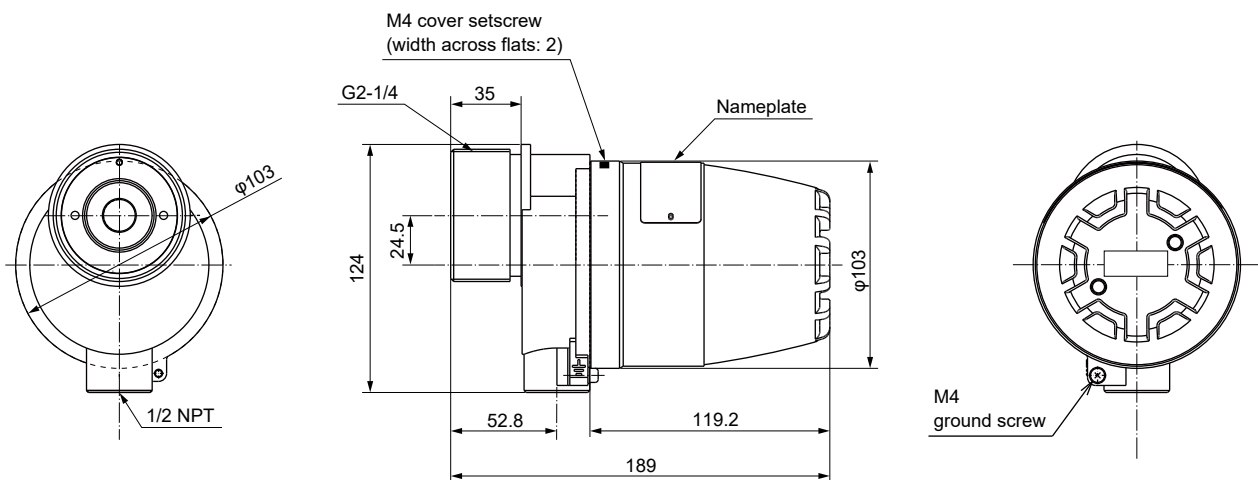
! Handling Precautions

- The ultraviolet flame detector has polarity. Correctly connect the wires to terminals F and G, which are indicated on the device. For the supplied cable, connect the blue lead wire to terminal F and the yellow wire to terminal G.

Dimensions

• Main unit

(Unit: mm)



Note: Use a cable gland that conforms to IECEx.

Cautions

- (1) This device is certified as having an IECEx explosion-proof structure, Ex db IIC T6 Gb. Install this device in a location that satisfies the conditions required by the certification.
- (2) Use a cable gland packing that conforms to IECEx.
- (3) The ultraviolet flame detector plays an important role for safety in monitoring the burner flame. Read the user's manual carefully in order to use this device correctly.
- (4) Do not install this product in a location where it will be exposed to any of the following.
 - Certain chemicals or fumes (ammonia, sulfur, chlorine, ethylene compounds, acids, or other corrosive gases)
 - Prolonged vibration
- (5) Make sure to use the supplied pressure-resistant packing cable gland.
- (6) If this product is used in an environment where there is an ultraviolet ray source other than the flame, take appropriate measures and check that only the ultraviolet rays from the burner flame is detected.

Examples of sources of ultraviolet rays other than flames

 - 1371 °C or hotter red-hot furnace wall (within 50 cm from wall)
 - Spark from an ignition transformer or welding arc
 - Gas laser
 - Sun lamp, sterilization lamp, ultraviolet lamp, fluorescent lamp
 - Strong flash of light

Examples of gamma ray and X-ray sources

 - Diffraction analyzer
 - Electron microscope
 - High-voltage vacuum switch
 - High-voltage capacitor
 - Radioactive isotope
- (7) Before wiring, be sure to turn the power off. Accidentally touching the wrong terminal can cause damage, malfunction, or electric shock.
- (8) The ultraviolet flame detector has polarity. Correctly connect the wires to terminals F and G, which are indicated on the device. For the supplied cable, connect the blue lead wire to terminal F and the yellow wire to terminal G.
- (9) When transporting or storing this device, be sure to put it in its original shipping box.
- (10) Run the signal wire of the flame detector independently. Do not bundle it with other signal wires or power wires.
- (11) After wiring, be sure to close the terminal cover securely and tighten the cover setscrew. Locking the terminal cover is required by the explosion-proof standard that this device conforms to.
- (12) Securely connect the high voltage cables of the ignition transformer to prevent poor contact. Poor contact may cause high frequency radio waves, which may cause malfunction. Also, ground the ignition transformer directly to a metal ground that is electrically connected to the housing of the burner.
- (13) A glass tube is used in the ultraviolet flame detector. Do not subject it to vibration or shock. Be especially careful not to transport the flame detector while it is mounted on a burner or combustion equipment. When transporting the burner or combustion equipment, be sure to put the flame detector in its original shipping box.

Please read "Terms and Conditions" from the following URL before ordering and use.

<https://www.azbil.com/products/factory/order.html>

Specifications are subject to change without notice.



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